

**Health Update:****Updated Interim  
Guidance for Lab  
Testing of Persons  
with Suspected  
Infection with Avian  
Influenza A (H5N1)  
Virus****June 20, 2006**

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**Health Update  
June 20, 2006**

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**SUBJECT: Updated Interim Guidance for Laboratory Testing of Persons  
with Suspected Infection with Avian Influenza A (H5N1) Virus**

On June 7, 2006, the Centers for Disease Control and Prevention (CDC) issued "Updated Interim Guidance for Laboratory Testing of Persons with Suspected Infection with Avian Influenza A (H5N1) Virus."\* This [Health Update](#) reproduces CDC's updated guidance, and provides additional information relative to influenza A (H5N1) virus testing in Missouri.

These updated testing recommendations replace those found in the November 7, 2005 Missouri Department of Health and Senior Services (DHSS) document entitled "Influenza A (H5N1): Indications for Testing and Infection Control Precautions." (Note this document has now itself been updated, and the updated version is available at <http://www.dhss.mo.gov/PandemicInfluenza/H5N1Testing-InfectionControl.pdf>.)

**Updated Interim Guidance for Laboratory Testing of Persons with Suspected  
Infection with Avian Influenza A (H5N1) Virus in the United States  
Centers for Disease Control and Prevention  
June 07, 2006**

This update provides revised interim guidance for testing of suspected human cases of avian influenza A (H5N1) in the United States and is based on the current state of knowledge regarding human infection with H5N1 viruses. The epidemiology of H5N1 human infections has not changed significantly since February 2004. Therefore, CDC recommends that H5N1 surveillance in the United States remain at the enhanced level first established at that time. However, this revised interim guidance provides an updated case definition of a suspected H5N1 human case for the purpose of determining when testing should be undertaken and also provides more detailed information on laboratory testing. Effective surveillance will continue to rely on health care providers obtaining information regarding international travel and other exposure risks from persons with specified respiratory symptoms as detailed in the recommendations below. This guidance will be updated as the epidemiology of H5N1 changes. Note: CDC is revising its interim guidance for infection control precautions for avian influenza A (H5N1). These will be issued as soon as they are available.

**Current Situation**

The avian influenza A (H5N1) epizootic (animal outbreak) in Asia has expanded to wild birds and/or poultry in parts of Europe, the Near East and Africa. Sporadic human infections with H5N1 continue to be reported and have most recently occurred in China, Egypt, Indonesia, Azerbaijan, Cambodia, and Djibouti. In addition, rare instances of probable human-to-human transmission associated with H5N1 viruses have occurred, most recently in a family cluster in Indonesia. So far, however, the spread of H5N1 virus from person to person has been rare, inefficient, and unsustainable. The total number of confirmed human cases of H5N1 reported as of June 7, 2006 has reached 225. The case fatality rate for these reported cases continues to be approximately 50 percent. As of this date, H5N1 has not been identified among animals or humans in the United States.

The epizootic in Asia and parts of Europe, the Near East and Africa is not expected to diminish significantly in the short term and it is likely that H5N1 infection among birds has become enzootic in certain areas. It is expected that human infections resulting from direct contact with infected poultry will continue to occur in affected countries. Since no sustained human-to-human transmission of influenza H5N1 has been documented anywhere in the world, the current phase of alert, based on the World Health Organization (WHO) global influenza preparedness plan, remains at Phase 3 (Pandemic Alert).\*\* In addition, no evidence for genetic reassortment between human and avian influenza A virus genes has been found. Nevertheless, this expanding epizootic continues to pose an important and growing public health threat. CDC is in communication with WHO and other national and international agencies and continues to monitor the situation closely.

### Reporting and Testing Guidelines

CDC recommends maintaining the enhanced surveillance efforts practiced currently by state and local health departments, hospitals, and clinicians to identify patients at increased risk for avian influenza A (H5N1). Guidance for enhanced surveillance was first described in a Health Alert Network (HAN) update issued on February 3, 2004 and most recently updated on February 4, 2005. [See <http://www.phppo.cdc.gov/HAN/ArchiveSys/>]

#### Testing for avian influenza A (H5N1) virus infection is recommended for:

A patient who has an illness that:

- requires hospitalization or is fatal; **AND**
- has or had a documented temperature of  $\geq 38^{\circ}\text{C}$  ( $\geq 100.4^{\circ}\text{F}$ ); **AND**
- has radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternate diagnosis has not been established; **AND**
- has at least one of the following potential exposures within 10 days of symptom onset:
  - A) History of travel to a country with influenza H5N1 documented in poultry, wild birds, and/or humans,<sup>†</sup> **AND** had at least one of the following potential exposures during travel:
    - direct contact with (e.g., touching) sick or dead domestic poultry;
    - direct contact with surfaces contaminated with poultry feces;
    - consumption of raw or incompletely cooked poultry or poultry products;
    - direct contact with sick or dead wild birds suspected or confirmed to have influenza H5N1;
    - close contact (approach within 1 meter [approx. 3 feet]) of a person who was hospitalized or died due to a severe unexplained respiratory illness;
  - B) Close contact (approach within 1 meter [approx. 3 feet]) of an ill patient who was confirmed or suspected to have H5N1;
  - C) Worked with live influenza H5N1 virus in a laboratory.

Testing for avian influenza A (H5N1) virus infection can be considered on a case-by-case basis, in consultation with local and state health departments, for:

- A patient with mild or atypical disease<sup>‡</sup> (hospitalized or ambulatory) who has one of the exposures listed above (criteria A, B, or C); **OR**
- A patient with severe or fatal respiratory disease whose epidemiological information is uncertain, unavailable, or otherwise suspicious but does not meet the criteria above (examples include: a returned traveler from an influenza H5N1-affected country whose exposures are unclear or suspicious, a person who had contact with sick or well-appearing poultry, etc.)

## Specimen Collection and Testing Guidelines

- Oropharyngeal swab specimens and lower respiratory tract specimens (e.g., bronchoalveolar lavage or tracheal aspirates) are preferred because they appear to contain the highest quantity of virus for influenza H5N1 detection, as determined on the basis of available data. Nasal or nasopharyngeal swab specimens are acceptable, but may contain less virus and therefore not be optimal specimens for virus detection.
- Detection of influenza H5N1 is more likely from specimens collected within the first 3 days of illness onset. If possible, serial specimens should be obtained over several days from the same patient.
- Bronchoalveolar lavage is considered to be a high-risk aerosol-generating procedure. Therefore, infection control precautions should include the use of gloves, gown, goggles or face shield, and a fit-tested respirator with an N-95 or higher rated filter. A loose-fitting powered air-purifying respirator (PAPR) may be used if fit-testing is not possible (for example, if the person has a beard). Detailed guidance on infection control precautions for health care workers caring for suspected influenza H5N1 patients is available.<sup>||</sup>
- Swabs used for specimen collection should have a Dacron tip and an aluminum or plastic shaft. Swabs with calcium alginate or cotton tips and wooden shafts are not recommended.<sup>§</sup> Specimens should be placed at 4°C immediately after collection.
- For reverse-transcriptase polymerase chain reaction (RT-PCR) analysis, specimens should be collected in Viral Transport Medium (not bacterial), after which specimens can be stored and shipped at 4°C. If specimens are to be held, they should be frozen at or below -70°C and shipped on dry ice. Avoid repeated freeze/thaw cycles.
- Influenza H5N1-specific RT-PCR testing conducted under Biosafety Level 2 conditions<sup>¶</sup> is the preferred method for diagnosis. The Missouri State Public Health Laboratory (MSPHL) is able to perform influenza H5N1 RT-PCR testing, and is the recommended site for initial diagnosis.
- Viral culture should NOT be attempted on specimens from patients suspected to have influenza H5N1, unless conducted under Biosafety Level 3 conditions with enhancements.<sup>¶</sup>
- Commercial rapid influenza antigen testing in the evaluation of suspected influenza H5N1 cases should be interpreted with caution. Clinicians should be aware that these tests have relatively low sensitivities, and a negative result would not exclude a diagnosis of influenza H5N1. In addition, a positive result does not distinguish between seasonal and avian influenza A viruses.
- Serologic testing for influenza H5N1-specific antibody, using appropriately timed specimens, can be considered if other influenza H5N1 diagnostic testing methods are unsuccessful (for example, due to delays in respiratory specimen collection). Paired serum specimens from the same patient are required for influenza H5N1 diagnosis: one sample should be tested within the first week of illness, and a second sample should be tested 2-4 weeks later. A demonstrated rise in the H5N1-specific antibody level is required for a diagnosis of H5N1 infection. Currently, the microneutralization assay, which requires live virus, is the recommended test for measuring H5N1-specific antibody. Any work with live wild-type highly pathogenic influenza H5N1 viruses must be conducted in a USDA-approved Biosafety Level 3 enhanced containment facility. Visit <http://www.cdc.gov/flu/h2n2bsl3.htm> for more information about procedures and facilities recommended for manipulating highly pathogenic avian influenza viruses.

### [Missouri-Specific Information]

[In Missouri, all suspected cases of influenza H5N1 should be immediately reported to the local public health agency, or the Missouri Department of Health and Senior Services (DHSS) at 800/392-0272 (24/7). The primary point of contact at DHSS is Eddie Hedrick - Emerging Infections Coordinator – 573/522-8596, or e-mail [Eddie.Hedrick@dhss.mo.gov](mailto:Eddie.Hedrick@dhss.mo.gov). Evenings, weekends or holidays call 800/392-0272. Mr. Hedrick should be contacted if testing for avian influenza is being considered.

Laboratory testing procedures in Missouri:

1. After consultation with Eddie Hedrick and determination that testing is necessary, contact the Missouri State Public Health Laboratory (MSPHL) at 573-751-3334 or 800/392-0272 prior to collecting lab specimens. This will assist in ensuring that the proper specimens are obtained in the right quantity, and that they are packed and transported properly.
2. The preferred kit for this type of specimen is any kit suitable for an infectious disease substance (i.e. SARS box, Rash kit or Rabies box). Many local public health agencies have a box on site or one should be available from the Senior Epidemiologist in the region. Boxes can also be ordered from MSPHL.
3. When specimens are collected, multiple specimens should be obtained, and multiple specimen types should be considered. The CDC laboratory has requested that they receive fresh clinical specimens regardless of what tests are done.
4. Specific instructions for collecting laboratory specimens may be found at [http://www.dhss.missouri.gov/Lab/Virology/sphl\\_avianflu\\_instructions.pdf](http://www.dhss.missouri.gov/Lab/Virology/sphl_avianflu_instructions.pdf).]

### Travel Health Notice

CDC has not recommended that the general public avoid travel to any of the countries affected by H5N1. However, CDC does recommend that travelers to these countries avoid poultry farms and bird markets or other places where live poultry are raised or kept. For details about other ways to reduce the risk of infection, see [http://www.cdc.gov/travel/other/avian\\_influenza\\_se\\_asia\\_2005.htm](http://www.cdc.gov/travel/other/avian_influenza_se_asia_2005.htm).

### More Information

[Missouri Dept of Health and Senior Services at <http://www.dhss.mo.gov/PandemicInfluenza/index.html>]

U.S. Department of Health and Human Services at [www.pandemicflu.gov](http://www.pandemicflu.gov)

World Health Organization at [http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/).

World Organization for Animal Health (OIE) at [http://www.oie.int/eng/en\\_index.htm](http://www.oie.int/eng/en_index.htm)

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\* CDC Health Update: Updated Interim Guidance for Laboratory Testing of Persons with Suspected Infection with Avian Influenza A (H5N1) Virus in the United States, June 07, 2006.

<http://www.phppo.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00246>

\*\*For the current WHO Pandemic Phase, see [http://www.who.int/csr/disease/avian\\_influenza/phase/en/index.html](http://www.who.int/csr/disease/avian_influenza/phase/en/index.html).

† For a listing of influenza H5N1-affected countries, visit the CDC website at <http://www.cdc.gov/flu/avian/outbreaks/current.htm>; the OIE website at [http://www.oie.int/eng/en\\_index.htm](http://www.oie.int/eng/en_index.htm); and the WHO website at [http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/).

‡ For example, a patient with respiratory illness and fever who does not require hospitalization, or a patient with significant neurologic or gastrointestinal symptoms in the absence of respiratory disease.

|| Interim recommendations for infection control in health-care facilities caring for patients with known or suspected avian influenza are available at <http://www.cdc.gov/flu/avian/professional/infect-control.htm>.

§ Specimens can be transported in viral transport media, Hanks balanced salt solution, cell culture medium, tryptose-phosphate broth, veal infusion broth, or sucrose-phosphate buffer. Transport media should be supplemented with protein, such as bovine serum albumin or gelatin, to a concentration of 0.5% to 1%.

¶ Information regarding Laboratory Biosafety Level Criteria can be found at <http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4s3.htm>.